

REMARKS

Claims 1, 6, 8-12, 14, 17, 29, 32, and 35-38 have been amended, claim 25 has been cancelled, and new claims 39-47 have been added. Thus, claims 1-24 and 26-47 are pending in the present application. The claim amendments are supported by the specification and claims of the present application, with no new matter being added. Accordingly, favorable reconsideration of the pending claims is respectfully requested.

Claims 6, 10, 11, 32 and 35-38 have been amended to change their dependencies, to correct typographical errors, or for clarity, and not for reasons related to patentability. The specification has been amended to provide the serial number of a copending application cited therein and to correct typographical errors.

1. Double Patenting

Claims 1-38 have been rejected under the judicially created doctrine of obviousness-type double patenting over claims 1-59 of copending U.S. Application Serial No. 10/021,532 for the reasons set forth on pages 2-3 of the Office Action.

Applicants will submit a terminal disclaimer to overcome the double patenting rejection of the present claims once allowable subject matter is indicated.

2. Rejections Under 35 U.S.C. § 112

Claims 8-10, 12, 14, 23 and 24 have been rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicants regard as the invention. Applicants respectfully traverse.

Claims 8, 9, 12, and 14 have been amended to provide proper antecedent basis for recitation of the “water soluble polymer.” Applicants note that such a water soluble polymer can be part of the multi-character material recited in the claims. (See Specification, page 4, paragraph [010]). Applicants note that claims 10, 23, and 24 are in proper form, so the rejection of these claims appears to be improper.

Accordingly, Applicants respectfully request that the rejection of claims 8-10, 12, 14, 23 and 24 under 35 U.S.C. § 112, second paragraph, be withdrawn.

3. Rejections Under 35 U.S.C. § 103

Claims 1-5, 7-23, 25-31, and 36-38 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 4,754,754 to Garito et al. (hereafter “*Garito*”) in view of U.S. Patent No. 6,132,427 to Jones et al. (hereafter “*Jones*”) and further in view of U.S. Patent No. 5,295,978 to Fan et al. (hereafter “*Fan*”) for the reasons set forth on pages 4-8 of the Office Action. Applicants respectfully traverse.

Claim 1 has been amended to recite that the conductive tip comprises, on at least a portion of the tip, a coating comprising a multi-character material “providing a low shear, sacrificial layer to the tip.” Independent claims 17 and 29 have been amended to recite similar limitations. Support for this limitation can be found in the application as filed on page 9, paragraph [030] and in original claim 25.

In the Office Action on page 7, the Examiner admitted with respect to claims 14 and 25 that *Garito* in view of *Jones* does not teach that a water-soluble polymer provides a low shear, sacrificial layer to the tip, but cited *Fan* for teaching a coating of a water-soluble polymer material that becomes lubricious when exposed to a body fluid. The Examiner argued that

recitation of the lubricous nature of the polymer coating in *Fan* meets the claimed limitation of a low shear, sacrificial layer. Applicants respectfully disagree.

Fan discloses a hydrophilic lubricious coating having three components: a polyisocyanate primer on a substrate, a polycarboxylic acid coating thereover, and a poly(lower-alkylene oxide) or poly(N-vinyl lactam) top coat. *Fan* emphasizes that in “the present invention a satisfactory polymeric coating on a substrate should exhibit a high degree of abrasion resistance which is related to its adhesion to the substrate. *Fan* further states that coatings made from polymers such as poly(ethylene oxide) alone “usually would not have adequate abrasion resistance. This shortcoming is overcome by the method of the present invention where these biocompatible complex polymers are immobilized by complexation with a precoat containing a suitable carboxyl-containing polymer.” (Col. 3, lines 28-40).

Thus, *Fan* discloses a hydrophilic lubricious coating that is abrasion resistant. Such a coating teaches away from the coating recited in the present independent claims that provides a “low shear, sacrificial layer to the tip.” The sacrificial layer, which is easily abraded from the tip, provides the feature of easy release of eschar formed on the tip of an electrosurgical instrument.

Further, there would have been no motivation modify the device of *Garito/Jones* by adding the polymeric coating of *Fan* as suggested by the Examiner. There is no teaching or suggestion in *Fan* that the coating disclosed therein could be used on a tip of an electrosurgical instrument. Rather, *Fan* discloses that its coating can be used on medical devices generally, and refers specifically to coating of catheters, needles, guide wires, prophylactic devices, etc. (col. 9, lines, 39-51). It is well known to those skilled in the art that a tip of an electrosurgical instrument is exposed to very harsh conditions under operation because of the heat generated at

the tip during use. Thus, the coatings that can be used on the surface of an electrosurgical tip are highly specialized and need to be able to function under the harsh conditions of electrosurgery. Combining the hydrophilic coating as disclosed in *Fan* with the device of *Garito/Jones* is an improper hindsight reconstruction of the invention since there is no suggestion in the cited references to apply a hydrophilic coating to an electrosurgical tip.

Accordingly, for the above reasons, claims 1, 17, and 29 would not have been obvious over the cited references. The remaining rejected claims depend from a respective one of claims 1, 17, or 29, and thus include the limitations of the respective independent claims. Hence, these dependent claims would not have been obvious over the cited references for at least the same reasons as discussed above for claims 1, 17, and 29. Applicants therefore respectfully request that the rejection of claims 1-5, 7-23, 25-31, and 36-38 under 35 U.S.C. § 103(a) be withdrawn.

4. New Claims

New claims 39-47 correspond to various original claims that were not rejected over the cited prior art references. In particular, claim 39 substantially corresponds to original claim 6 rewritten in independent form. Independent claims 40 and 43 recite limitations similar to claim 39 with respect to the multi-character material, but are directed to a tip for use in performing an electrosurgical procedure and a method for coating a tip, respectively. Dependent claim 41 includes limitations similar to original claim 35. Claim 42 is similar to claim 24 rewritten in independent form. Claim 44 substantially corresponds to original claim 32 rewritten in independent form, and dependent claims 45-47 correspond to original claims 33-35.

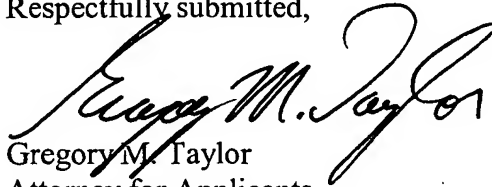
Accordingly, claims 39-47 also present patentable subject matter.

CONCLUSION

In view of the foregoing, Applicants respectfully request favorable reconsideration and allowance of the present claims. In the event there remains any impediment to allowance of the application, which could be clarified in a telephone interview, the Examiner is respectfully requested to contact the undersigned attorney.

Dated this 4th day of June 2003.

Respectfully submitted,



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VERSION WITH MARKINGS TO SHOW THE CHANGES MADE

IN THE SPECIFICATION:

The paragraph under the heading RELATED PATENT APPLICATIONS on page 1 has been amended as follows:

Reference is made to copending United States Patent Application Serial No. 10/021,532, filed on December 12, 2001, and entitled "Application and Utilization of a Water-Soluble Polymer on a Surface," the disclosure of which is incorporated by [this] reference.

Paragraph [010] on page 4 has been amended as follows:

In at least one implementation of the present invention, the hydrophilic material used to obtain the multi-character material and/or to provide the optional covering layer is a water-soluble polymer. For example, when a surface coating of an electrosurgical tip includes a water-soluble polymer, water may be attracted to the tip that assists in cooling and/or lubricating the tip. A water-soluble polymer coating layer may further create a low shear, sacrificial layer on the tip that protects and enhances the performance of the tip. Alternatively or additionally, the water-soluble polymer may supply a radical scavenger or inhibitor to reduce damage to [thetip] the tip, deposit factors or active agents, such as healing factors, from the tip onto one or more contact surfaces of the patient's body, and/or provide other desired properties, attributes and/or characteristics to the tip.

IN THE CLAIMS:

Claims 1, 6, 8-12, 14, 17, 29, 32, and 35-38 have been amended as follows:

1. (Once Amended) An electrosurgical instrument, [the electrosurgical instrument] comprising:

a hand piece configured to receive radio frequency energy from [a] an electrosurgical generator; and

a conductive tip adapted to receive the radio frequency energy from the hand piece, the conductive tip comprising, on at least a portion of the tip, a coating comprising a multi-character material providing a low shear, sacrificial layer to the tip.

6. (Once Amended) An electrosurgical instrument as recited in claim 1, wherein the multi-character material comprises an amphophilic material with molecular chains having a hydrophilic characteristic[, which comprises a water-soluble polymer,] and a hydrophobic characteristic.

8. (Once Amended) An electrosurgical instrument as recited in claim [7] 1, wherein the multi-character material comprises a water-soluble polymer [comprises] comprising at least one of:

- (iv) polyethylene oxide;
- (v) polyethylene glycol; or
- (vi) a copolymer of ethylene oxide.

9. (Once Amended) An electrosurgical instrument as recited in claim [7] 8, wherein the water-soluble polymer comprises at least one of a water soluble hetero atom polymer, a water [soluable] soluble acrylate polymer, a water soluble acrylic acid polymer, a water [soluable] soluble vinyl polymer, and a water soluble natural polymer.

10. (Once Amended) An electrosurgical instrument as recited in claim [7] 1, wherein the coating further includes a radical scavenger to reduce damage to the coating during a process of gamma sterilization.

11. (Once Amended) An electrosurgical instrument as recited in claim [7] 6, wherein the hydrophobic characteristic comprises at least one of:

- (iv) polypropylene oxide;
- (v) a fluorocarbon; or
- (vi) a hydrocarbon.

12. (Once Amended) An electrosurgical instrument as recited in claim [7] 8, wherein the water-soluble polymer is a carrier that provides a factor on a contact area of a patient's body during the electrosurgical procedure.

14. (Once Amended) An electrosurgical instrument as recited in claim [7] 8, wherein the water-soluble polymer provides [a] the low shear, sacrificial layer to the tip.

17. (Once Amended) A tip adapted for use in performing an electrosurgical procedure, the tip comprising:

- a prepared surface; and
- a coating applied to at least a portion of the prepared surface, wherein the coating includes a multi-character material providing a low shear, sacrificial layer to the tip.

29. (Once Amended) A method for coating a tip of an electrosurgical instrument, the method comprising [the acts of]:

- preparing a surface of an electrosurgical tip to be coated; and
- applying a multi-character material coating layer on the surface such that the multi-character material provides a low shear, sacrificial layer to the tip.

32. (Once Amended) A method as recited in claim 31, wherein [the act of] applying a multi-character material coating layer comprises [the act of] using a process of electrophoresis to draw [the] a multi-character material into at least a portion of the pores, wherein the combination of the multi-character material and a base material of the base material coating layer form a first layer about at least a portion of the tip.

35. (Once Amended) A method as recited in claim [34] 32, further comprising [the act of] applying a coating layer onto the first layer, wherein the coating layer includes a hydrophilic material.

36. (Once Amended) A method as recited in claim 29, wherein [the act of] applying a multi-character material coating layer includes utilizing an application process that comprises at least one of:

- (vi) a dip process;
- (vii) a spray process;
- (viii) a brushing process;
- (ix) a wiping process; or
- (x) an adsorption process.

37. (Once Amended) A method as recited in claim 36, wherein the multi-character material coating layer comprises [a multi-character] an amphophilic material with molecular chains having a hydrophobic characteristic and a hydrophilic characteristic, and wherein the hydrophilic characteristic comprises at least one of:

- (iv) polyethylene oxide;
- (v) polyethylene glycol; or
- (vi) a copolymer of ethylene oxide.

38. (Once Amended) A method as recited in claim 37, wherein the hydrophobic characteristic comprises at least one of:

- (iv) polypropylene oxide;
- (v) a fluorocarbon; or
- (vi) a hydrocarbon.